Minutes of the 4th TD/BD Coordination Meeting

3 September 2003

Present: Bob Kephart, Victor Yarba, Jim Kerby (scribe), Paul Czarapata, Hank Glass, Dave Harding, Giorgio Apollinari, Rich Stanek, Gregg Kobliska, Peter Garbincius

Agenda:

Wednesday, 3 September 2003 10:00 AM (started at 10:30 due to room mixup)
The Hermitage - Industrial Center Building, 2 East videoconference room

Pending issues from last meeting:

- Are adequate technicians available for shutdown work?
- When will second Booster dogleg extraction area be modified?
- Electron cooling vacuum - What is status?
- How much can be done on electron cooling magnetic shielding without tunnel measurements?
- How much can be done on Recycler magnetic shielding without tunnel measurements?
- Proton Driver R&D - prototype 2nd harmonic choke. OK?
- Do we need a spare sextupole to replace Accumulator skew sextupole?

Planning for FY04 -

Jobs continuing from FY03

- -Build Booster extraction septum magnets
- -Measure Booster gradient magnets (AC)
- -Build spare IQC/IQD
- -Study Linac PA tubes
- -Build spare Accumulator trim dipoles (NDA)
- -Support Recycler flying wire development
- -Study Tev RF structures
- -Rebuild two Tevatron D spools
- -Study Tevatron magnets
- -Study electrostatic separator issues

Jobs just starting, or to start after shutdown

- Study wire compensation system
- Design and build prototype second harmonic choke
- Procure long ceramic beam tubes
- Design, prototype, and fabricate electron cooling return beam line
- Assist in design, test, and implementation of Recycler magnetic shielding in NuMI region
- Design and fabricate new vacuum system and magnetic shielding for electron cooling solenoids
- Design a magnetic reference system for Tevatron
- Build four spare ILA magnets FMI/Tevatron Lambertsons
- Build or procure replacement coils for LEP corrector dipoles

Jobs discussed at various levels but not approved

- Design and build ORBUMP replacements
- Design and build additional Booster sextupoles

- Design and build new Debuncher injection septum magnet
- Design and build new Debuncher injection, extraction kickers
- Modify LQB magnets as needed to replace D4Q4
- Design and build new Debuncher stochastic cooling tank
- Other undefined AP2/Debuncher aperture work
- Design and build Tevatron IPM magnets
- Build spare SSS/SSN sextupole for Accumulator/Tevatron
- Design and build new electrostatic separators
- Build separator polarity reversing switches
- Build additional Booster dogleg stands and vacuum systems
- Design and build Tevatron electron lens improvements
- Design and build prototype 6.6 T dipole
- Design and build new magnets for C0 intersection region
- Refurbish magnets for CKM beam line
- Design and build new magnets for CKM beam line
- Rebuild 3Q120M magnets
- Design and build larger aperture quadrupole for Main Injector extraction

For the status of various projects see:
http://tdserver1.fnal.gov/Project/JobFiles/Current_Jobs/TD_work_for_BD/TD-BD_JoblistSorted.xls

A copy of this agenda and minutes from previous meetings can be found at
http://tdserver1.fnal.gov/AcceleratorSupport/TD-BD_Meetings/

The **next meeting** is

Wednesday, 17 September 2003 10AM
Location: ICB2E, The Hermitage Videoconference Room

We will attempt to avoid the room mixup that caused the late start and some people to miss this meeting. The focus of this meeting, when it started, was getting ready for the shutdown and planning for FY04.

Onwards…

Pending Issues from Last Meeting

TD Technician Help – The BD tech needs for the shutdown are covered.

When will the 2nd Booster dogleg extraction be modified – Don't know. If next summer, TD needs to get stands and make preparations for manifold modifications. Dave McGinnis will email the plan. It's noted that the radiation levels of the existing magnets aren't known and need to be measured..

Electron cooling vacuum system – TD and BD management got involved, the work has been reorganized with the addition of an expert from ANL, and all parties are making another stab at making this work. BD and TD will keep a close watch.

Electron cooling return line magnetic shielding – TD thinks a good deal of the design can progress with modeling and detailed measurements at MTF, but in the end measurements during a power on access will be needed to confirm the model. There is a potential for measurements at the end of the shutdown. This needs to stay on the job list.

Recycler shielding – Same design situation as the electron cooling shielding, except that BD is leading this work, the geometry is more complicated, and there are more magnets to measure. A short discussion was held on the topic of the installation of NuMI bus work, and how it might be good to have it reviewed before installation.

Prototype 2nd Harmonic Choke – This will be dropped from this list, as it is covered under Proton Driver R&D in the Tech Division..

Need for a spare sextupole to replace the accumulator skew sextupole – Unknown at this meeting. Dave McGinnis to respond.

FY04 Planning

TD needs a priority list from BD. TD will draw a line consistent with expected resources, and BD can move things on or off. New items will displace others on the list. TD expects this effort in FY04 to be about $2M, not including C0 or CKM beam line.

Due to the late start, we did not go through the list item by item. Instead various topics were touched on and are listed below.

Linac PA tubes – After the recent encouraging visit to BNL, BD would like this effort to continue, with a goal by the end of FY04 of having a complete set of drawings. FNAL and others are working to buy a bonded stock at Burle to cut down delivery times. This effort is an insurance policy; in the long run we need a new linac.

Study of TeV RF Structures – This effort started last winter, was stopped, and then restarted in the summer. It's a study of the effect of mechanical vibrations in the structure and how they relate to longitudinal emittance growth. The current status is unclear.

Separator review topics -- TD asked about the outcome of the separator review, but the official report is not out as yet. There was discussion on the immediate limit being the feedthrough, not the plates, but work on modeling the feedthrough hasn't been started as yet. TD needs guidance on whether the longer plates, or coated plates, are to be pursued. Not known yet. The polarity reversing switches were deemed very useful, even with the report not out yet. TD/MC will hunt for the vendor who was claimed at the review to already make these items so we could buy them off the shelf as opposed to making them.

AP2 / Debuncher work – This still needs definition for next year.

Debuncher stochastic cooling tank – Is this a job or not? Dave McGinnis to report.

TeV Electron Lens – The project is in the review stage, decision on building a 2nd or modifying the existing device has not been taken as yet. This is related to the study of the wire compensation scheme.

Cooked Lambertson – TD has given this magnet a clean bill of health after conducting studies on the epoxy at high temperature. It was noted that there is an FY04 job to build 4 spare ILA FMI / Tevatron Lambertsons.

Finally, TD commented that cold lift measurements appear to show that for higher serial number TeV dipoles, the shift is higher than for magnets made earlier (consistent with the original measurements being made quicker, before much creep could occur), but that much more study is needed. TD has several more days of data review to do before determining if the shims to be installed in the higher number magnets should be larger than those installed elsewhere. Making a map of the cold lift of the whole machine would be good, either at the end of this shutdown or some other time.